REMARKS

1. Amendments

Independent claim 1 is amended to further define the hydrodesulfurization catalyst and the feedstock of the claimed process. Among these amendments, the feedstock of the process of claim 1 is defined to further include the presence of sulfur. Support for this requirement is found in paragraph [0020] of the published specification and in dependent claim 12. The catalyst of step (a) of the process of claim 1 is further defined to be non-fluorided, to have a certain composition, and to have certain physical properties. As noted in the specification, the property of not being a fluorided catalyst is a significant feature of the inventive process. *See* paragraphs [0005], [0009], [0049], and the figures. Support for the metals content of the catalyst composition may be found in the published specification at paragraph [0012] and in dependent claim 8. Support for the requirement that the catalyst include a large pore molecular sieve and the concentration limitation for the molecular sieve is found in paragraphs [0025] and [0050] and dependent claims 14-15 of the published specification. Support for the physical property limitations of the catalyst may be found in paragraphs [0017] and [0018] and dependent claims 9-11.

Claims 3 and 8-11 are cancelled from the specification with the limitations of dependent claims 8-11 being essentially incorporated into independent claim 1.

The amendments made to the remaining claims are to change the dependencies required as a result of the above-noted cancellations and to provide for references to proper antecedents.

2. The Baker et al. (US 5,951,848) Reference

The Baker patent discloses a process for catalytically dewaxing a feedstock by using a catalyst system comprising two different types of catalysts that synergistically act together. *See, e.g.*, abstract. The catalyst system includes a high activity hydrotreating catalyst that is placed upstream of a dewaxing catalyst with, preferably, both catalysts being contained in a single vessel so as to create a synergistic catalyst system. *See* column 2, lines 46-60; column 3, lines 16-20, 27-30, 61-64; column 8, lines 17, 42-49. Baker describes hydrocracking catalysts, *see* column 5, line 62 – column 7, line 39, and Baker states that the primary difference between hydrotreating

and hydrocracking is in the degree of boiling range conversion of the heavy hydrocarbons to below 650°F boiling range products, but there are other differences between the two that are noted as well by Baker. *See* column 7, lines 57-column 8, line 6.

The high activity hydrotreating catalyst of the Baker inventive process preferably contains platinum or palladium in the amount ranging from 0.1% to 5 wt.%. *See* column 8, lines 49-60. The support is a porous, amorphous metal oxide with a silica-alumina combination with low acid activity being acceptable. *See* column 8, lines 63-66. The hydrotreating catalysts used in the examples was a Pt-Pd on SiO_2-Al_2O_3. *See* column 13, lines 39-44 (Example 3); column 14, lines 39-42 (Example 4); column 15, lines 60-63 (Example 5); column 16, lines 7-10 (Example 6).

Baker describes a hydrocracking catalyst as being an amorphous bifunctional catalyst that is a combination of base metals with one selected from Group VIII metals in combination with one selected from Group VIB metals. *See* column 4, lines 60-61; column 5, line 62 – column 6, line 22. The metal is supported on a porous, amorphous metal oxide that normally has a minimum pore size of about 50 Angstroms. *See* column 6, lines 22-58. The hydrocracking catalyst may be promoted with fluorine with alumina-based hydrocracking catalysts typically requiring fluorine promotion and silica-alumina or zeolitic based hydrocracking catalysts not generally requiring fluorine addition. *See* column 6, lines 58-65. The metals may be sulfided. *See* column 7, lines 28-32.

The Baker patent appears to be suggesting that the hydrocracking step is used to pretreat the feed that is processed in the synergistic catalyst system of Baker's dewaxing process, which system includes the high activity hydrotreating catalyst and dewaxing catalyst. *See* column 4, lines 59-62; column 7, line 57-60; column 8, lines 17-21, 42-67. Thus, the high activity hydrotreating catalyst of the Baker process is placed in between a hydrocracking catalyst, if used to pretreat the feedstock, and the dewaxing catalyst.

3. The §102(b), or alternatively, §103(a) Rejection of Claims 1-3 over Baker et al. (US 5,951,848).

Independent claim 1 has been amended to further define the hydrodesulfurization catalyst of the contacting step (a). A result of this further definition of the catalyst, additional features are recited which distinguish the claimed catalyst over those taught by the Baker reference. It is

respectfully submitted that claim 1, as now amended, is patentably distinct over the primary reference of Baker.

There is no indication in Baker that its disclosed high activity hydrotreating catalyst includes an acid-type amorphous silica-alumina carrier or that the high activity hydrotreating catalyst is non-fluorided. Moreover, there is no suggestion in Baker that its high activity hydrotreating catalyst can contain a large pore molecular sieve nor is there any teachings presented in Baker on the pore structure of its high activity hydrotreating catalyst. There are no teachings in Baker concerning the ranges for Group VIB and Group VIII metal concentrations of the high activity hydrotreating catalyst except for concentration ranges of noble metals.

As for the hydrocracking catalyst disclosed in the Baker patent, there are no teachings that it includes an acid-type amorphous silica-alumina support or that the hydrocracking catalyst contains a large pore molecular sieve. There further is no disclosure in the Baker patent of the proportion of the amorphous silica-alumina of its hydrocracking catalyst that is alumina. There also is no teaching in Baker that its hydrocracking catalyst can have a surface area greater than 200 m^2/g or of the proportion of the pore volume contained in its large pores.

The Applicants' process of claim 1 involves the dewaxing of a product that results from the hydrodesulfurization of a sulfur-containing base oil feedstock. The process disclosed in the Baker patent, on the other hand, involves the pretreatment of a feedstock by hydrocracking followed by dewaxing the pretreated feedstock by employing the synergistic catalyst system that involves first using a high activity hydrotreating catalyst followed by the dewaxing catalyst. The high activity hydrotreating catalyst described in the Baker patent is not similar in any way to the Applicants' claimed sulfided, non-fluorided hydrodesulfurization catalyst.

It is respectfully submitted that the Applicants' invention is patentable over the prior art in view of the many differences thereover as noted above.

4. The §103(a) Rejection of Claim 4 over Baker et al. (US 5,951,848) in view of Shimizu et al. and Speight.

This rejection is rendered moot as a result of the amendments made to independent claim 1 from which claim 4 indirectly depends and the comments made above.

5. The §103(a) Rejection of Claims 5-8 over Baker et al. (US 5,951,848) in view of Shimizu et al. and Speight and Toba et al.

This rejection is rendered moot as a result of the amendments made to independent claim 1, from which the claims indirectly depend, the comments made above, and the cancellation of claim 8.

6. §103(a) Rejection of Claims 9-12 over Baker et al. (US 5,951,848) in view of Shimizu et al. and Speight and Toba et al. and Chen et al. (US 6,723,297).

This rejection is rendered moot as a result of the amendments made to independent claim 1, from which the claims indirectly depend, the comments made above, and the cancellation of claims 9-11.

7. §103(a) Rejection of Claims 13-15 over Baker et al. (US 5,951,848) in view of Shimizu et al. and Speight and Toba et al. and Chen et al. (US 6,723,297) and De Bont et al.

This rejection is rendered moot as a result of the amendments made to independent claim 1, from which the claims indirectly depend, and the comments made above.

8. §103(a) Rejection of Claims 16-18 over Baker et al. (US 5,951,848) in view of Shimizu et al. and Speight and Toba et al. and Chen et al. (US 6,723,297) and De Bont et al. and Sequeira.

This rejection is rendered moot as a result of the amendments made to independent claim 1, from which the claims indirectly depend, and the comments made above.

9. §103(a) Rejection of Claim 19 over Baker et al. (US 5,951,848) in view of Shimizu et al. and Speight and Toba et al. and Chen et al. (US 6,723,297) and De Bont et al. and Sequeira and Chen et al. (US 4,919,788).

This rejection is rendered moot as a result of the amendments made to independent claim 1, from which the claims indirectly depend, and the comments made above.

10. Conclusion

In view of the above, it is respectfully submitted that the now-pending claims 1-2, 4-7, and 12-19 are patentable. Thus, it is respectfully requested that the Examiner reconsider and withdraw his rejections and allow the pending claims.

Respectfully submitted,

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